

Notice of Allowability

Application No.

09/988,528

Examiner

Hung H. Lam

Applicant(s)

KAKUMOTO ET AL.

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 10/06/05.
2. ☒ The allowed claim(s) is/are 1,2,5,10; 18,19,21,22,35; 27,33,34; 31,32 and 36 are renumbered as 1-4; 5-9; 10-12 and 13-15, respectively.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

Response to Amendment

1. The amendments, filed on 10/06/05, have been entered and made of record. Claims 3-4 are cancelled.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this examiner's amendment was given in a telephone interview with Martin E. Miller on 12/20/05.

The application has been amended as follows:

IN THE CLAIMS:

Claims 6-9, 11-17, 20, 23-26 and 28-30 have been canceled.

4. It is noticed that claims 21-22 and 32 are readable upon the elected species and thus have been rejoined.

Allowable Subject Matter

5. Claims 1, 2, 5, 10, 18, 19, 21, 22, 27, 31-36 are allowed.

6. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach or fairly suggest:

Regarding independent **claims 1**, “a scanning circuit, comprising:

a plurality of transfer stages connected in series, each of which receives an input signal and produces a corresponding output signal, **wherein each transfer stage comprises only one switch that receives the input signal and is activated by a clock signal, and only one buffer for receiving and holding the input signal when said switch is closed;**

an output circuit which comprises a sequence of AND gates and performs a logical AND function of the output signals of said transfer stages and another signal to generate scanning pulses; and

a clock generating circuit that supplies clock signals to said transfer stages in an alternating manner to generate a progressive sequence of scanning pulses.”

Regarding independent **claims 18**, “a scanning circuit, comprising:

a plurality of transfer stages connected in series, each of which includes a switch that receives an input signal, and that produces an output signal having a state related to said input signal, **wherein each transfer stage comprises only one switch that receives the input signal and is activated by a clock signal, and only one buffer for receiving and holding the input signal when said switch is closed;**

a clock generating circuit that generates a first clock signal at a given frequency having a first phase that is applied to the switches in a first group of said transfer stages, to cause said transfer stages to receive an input signal at a time corresponding to said first phase, and a

second clock signal at said given frequency having a second phase different from said first phase, that is applied to the switches in a second group of said transfer stages, to cause said transfer stages in said second group to receive an input signal at a time corresponding to said second phase; and

an output circuit comprising a sequence of AND gates, each of which receives an output signal from a transfer stage in said first group and a transfer stage in said second group, to produce a sequence of scanning pulses at a frequency higher than said given frequency.”

Regarding independent **claims 27**, “an imaging apparatus, comprising:

an image sensing device having an array of pixels;

an output circuit for outputting values from selected pixels in said array;

a scanning circuit for selecting the pixels in said array, including a plurality of transfer stages connected in series, each of which receives an input signal and produces a corresponding output signal, and **an output circuit which comprises a sequence of AND gates and performs a logical AND function of the output signals of said transfer stages and another signal to generate scanning pulses, wherein each transfer stage comprises only one switch that receives the input signal and is activated by a clock signal, and only one buffer for receiving and holding the input signal when said switch is closed; and**

a clock generating circuit that supplies clock signals to said transfer stages in an alternating manner to generate a progressive sequence of scanning pulses.”

Regarding independent **claims 31**, “a pulse signal generating apparatus comprising:

a transfer stage portion comprising a plurality of transfer stages connected in series, said transfer stages **each including only one switch for passing current in a direction in which the transfer stages are connected in series, and only one buffer for receiving and holding the input signal when said switch is closed;**

a first pulse generating portion that supplies a first driving pulse to first switches in the transfer stage portion at predetermined intervals;

a second pulse generating portion that supplies a **second driving pulse whose phase is shifted from that of the first driving pulse**, at the predetermined intervals, to second switches of the transfer stages which switches are not included in the first switches; and

an output portion that outputs pulse signals successively from a plurality of AND gates connected to the transfer stages, at intervals shorter than the predetermined intervals. “

Regarding **claims 2, 5, 10, 19, 21, 22 and 32-36**, the claims are allowed as being dependent of claims 1, 18, 27 and 31, respectively.

Conclusion

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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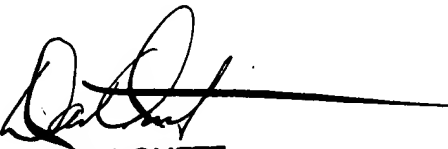
fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance." Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL

12/20/05


DAVID OMETZ
SUPERVISORY PATENT EXAMINER